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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/783,505	02/20/2004	David P. Bloomfield	X-0132	7580

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CHEVRON TEXACO LAW DEPARTMENT
INTELLECTUAL PROPERTY PRACTICE GROUP
P.O. BOX 3725
HOUSTON, TX 77253-3725

EXAMINER

RIDLEY, BASIA ANNA

ART UNIT PAPER NUMBER

1764

DATE MAILED: 05/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/783,505	Applicant(s) BLOOMFIELD ET AL.	
	Examiner Basia Ridley <i>BR</i>	Art Unit 1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 February 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) 11-27 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 February 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>051304</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Invention I-A, claims 1-10, in the reply filed on 28 February 2005 is acknowledged.

1. Claims 11-27 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim.

Priority

2. It is noted that this application appears to claim subject matter disclosed in prior Application No. 60/449,822, filed 24 February 2003. A reference to the prior application must be inserted as the first sentence(s) of the specification of this application or in an application data sheet (37 CFR 1.76), if applicant intends to rely on the filing date of the prior application under 35 U.S.C. 119(e) or 120. See 37 CFR 1.78(a). For benefit claims under 35 U.S.C. 120, the reference must include the relationship (i.e., continuation, divisional, or continuation-in-part) of all nonprovisional applications. Also, the current status of all nonprovisional parent applications referenced should be included.

If the application is a utility or plant application filed under 35 U.S.C. 111(a) on or after November 29, 2000, the specific reference to the prior application must be submitted during the pendency of the application and within the later of four months from the actual filing date of the application or sixteen months from the filing date of the prior application. If the application is a utility or plant application which entered the national stage from an international application filed on or after November 29, 2000, after

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compliance with 35 U.S.C. 371, the specific reference must be submitted during the pendency of the application and within the later of four months from the date on which the national stage commenced under 35 U.S.C. 371(b) or (f) or sixteen months from the filing date of the prior application. See 37 CFR 1.78(a)(2)(ii) and (a)(5)(ii). This time period is not extendable and a failure to submit the reference required by 35 U.S.C. 119(e) and/or 120, where applicable, within this time period is considered a waiver of any benefit of such prior application(s) under 35 U.S.C. 119(e), 120, 121 and 365(c). A benefit claim filed after the required time period may be accepted if it is accompanied by a grantable petition to accept an unintentionally delayed benefit claim under 35 U.S.C. 119(e), 120, 121 and 365(c). The petition must be accompanied by (1) the reference required by 35 U.S.C. 120 or 119(e) and 37 CFR 1.78(a)(2) or (a)(5) to the prior application (unless previously submitted), (2) a surcharge under 37 CFR 1.17(t), and (3) a statement that the entire delay between the date the claim was due under 37 CFR 1.78(a)(2) or (a)(5) and the date the claim was filed was unintentional. The Director may require additional information where there is a question whether the delay was unintentional. The petition should be addressed to: Mail Stop Petition, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Specification

3. The disclosure is objected to because of the following informalities:
- the specification should be amended to include current status of all referenced US Patent applications (e.g. P3/L11-14).

Appropriate correction is required. Applicant is reminded that no new matter shall be added.

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Drawings

4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: in Fig. 1: 38, 62, 83, 92, 70, 110, 10. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-3 and 5-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rostrop-Nielsen et al. (US 5,932,141) in view of Stevens (USP 2002/0155329).

Regarding claims 1-2 and 8 Rostrop-Nielsen et al. discloses the fuel processor comprising:

- a desulphurization unit (1);

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- a pre-reformer (3, abstract);
- a steam reformer (5, abstract).

While the reference does not disclose said reformer comprising a carbon-dioxide fixing material, usage of said materials in reformers was known in the art at the time of the invention, as evidenced by Stevens (abstract). wherein said carbon dioxide fixing material is selected from an alkaline earth oxide, doped alkaline earth oxide and mixtures thereof (abstract). Additionally, Stevens teaches that using said carbon-dioxide fixing material in the reformer shifts reaction equilibrium toward high hydrogen production with only small amounts of carbon monoxide being produced (Stevens, C7/L52-59). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to add a carbon dioxide fixing material into the steam reformer of Rostrop-Nielsen et al., for the purpose of increasing production of hydrogen by shifting reaction equilibrium.

Regarding claims 3, 6-7 and 10 Rostrop-Nielsen et al. in view of Stevens disclose all of the claim limitations as set forth above. Additionally Rostrop-Nielsen et al. discloses the fuel processor further comprising:

- a vaporization unit (2) upstream of the pre-reformer (3);
- wherein the catalyst bed comprises steam reforming catalyst comprising precious metal (C2/L6-8);
- wherein the catalyst bed comprises a water gas shift catalyst (C2/L6-8);
- wherein the pre-reformer comprises catalyst suitable for converting the hydrocarbon fuel to a mixture of C₁ and C₂ hydrocarbons (C2/L6-8).

Regarding claim 5 Rostrop-Nielsen et al. in view of Stevens disclose all of the

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claim limitations as set forth above. While Rostrop-Nielsen et al. discloses that representative figures show only from end of a plant producing syngas (C2/L20-24), the reference does not explicitly disclose and further processing steps which are required for complete production of said syngas.

Stevens discloses the fuel processor further comprising:

- a unit (44) downstream of the steam reformer selected from the group consisting of a methanation unit, selective oxidizer and water gas shift reactor for removing carbon monoxide from produced syngas.

It would have been obvious to one having ordinary skill in the art at the time of the invention to add a unit downstream of the steam reformer selected from the group consisting of a methanation unit, selective oxidizer and water gas shift reactor to fuel processor of Rostrop-Nielsen et al., as taught by Stevens, for the purpose of removing carbon monoxide from produced syngas.

Regarding claim 10 Rostrop-Nielsen et al. in view of Stevens disclose all of the claim limitations as set forth above, but the reference does not disclose the steam reformer comprising at least two beds and means for diverting feed streams between the at least two beds.

Stevens discloses the fuel processor further comprising:

- at least two steam reforming beds (41, 42) and means (40) for diverting feed streams between the at least two beds (41, 42) to allow for continuous operation during bed regeneration (c3/L52-C4/L20).

It would have been obvious to one having ordinary skill in the art at the time of the invention to add at least a second steam reforming bed and means for diverting feed

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streams between the at least two beds to fuel processor of Rostrop-Nielsen et al., as taught by Stevens, for the purpose of allowing for continuous operation during bed regeneration.

Regarding limitations recited in claims 1-3 and 5-10 which are directed to a manner of operating disclosed processor, neither the manner of operating a disclosed device nor material or article worked upon further limit an apparatus claim. Said limitations do not differentiate apparatus claims from prior art. See MPEP § 2114 and 2115. Further, process limitations do not have patentable weight in an apparatus claim. See *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App. 1969) that states “Expressions relating the apparatus to contents thereof and to an intended operation are of no significance in determining patentability of the apparatus claim.”

7. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rostrop-Nielsen et al. (US 5,932,141) in view of Stevens (USP 2002/0155329) and further in view of Buswell et al. (USP 5,360,679).

Regarding claim 4 Rostrop-Nielsen et al. in view of Stevens disclose all of the claim limitations as set forth above. While Rostrop-Nielsen et al. discloses that representative figures show only from end of a plant producing syngas (C2/L20-24), the reference does not explicitly disclose and further processing steps which are required for complete production of said syngas.

Buswell et al. discloses the fuel processor further comprising:

- condenser (182) for removing water from reformat before said reformat can be fed to fuel cell.

It would have been obvious to one having ordinary skill in the art at the time of

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the invention to condenser for removing water from reformat to fuel processor of Rostrop-Nielsen et al., as taught by Buswell et al., for the purpose of removing water from said reformat before said reformat can be fed to fuel cell.

Regarding limitations recited in claim 4 which are directed to a manner of operating disclosed processor, neither the manner of operating a disclosed device nor material or article worked upon further limit an apparatus claim. Said limitations do not differentiate apparatus claims from prior art. See MPEP § 2114 and 2115. Further, process limitations do not have patentable weight in an apparatus claim. See *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App. 1969) that states "Expressions relating the apparatus to contents thereof and to an intended operation are of no significance in determining patentability of the apparatus claim."

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Conclusion

9. In view of the foregoing, none of the claims are allowed.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner Basia Ridley, whose telephone number is (571) 272-1453.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola, can be reached on (571) 272-1444.

The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Technical Center 1700 General Information Telephone No. is (571) 272-1700. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Questions on access to the Private PAIR system should be directed to the Electronic Business Center (EBC) at (866) 217-9197 (toll-free).



Basia Ridley
Examiner
Art Unit 1764

BR
March 21, 2005